

Amendment

Appl. No. 10/767,061

Preliminary Amendment Dated: September 14, 2004

Referring to FIG. 18, in step 611, the input part 110 receives an input image shown in FIG. 19A. FIGs. 19A-I are examples of images generated in each step of the binarization procedure of FIG. 18. It is assumed that the image consists of 640 (columns) \times 480 (rows) pixels. In step 613, the block classification part 120 divides the input image ~~[[of]]~~ as represented by FIG. 19A received from the input part 110 into blocks, analyzes pixels of the divided blocks, and classifies the divided blocks into character blocks and background blocks. The input image is divided into 8 \times 8-pixel blocks, and then classified into character blocks and background blocks shown in FIG. 19B. In FIG. 19B, which is an example of an input image, gray portions represent regions classified as character blocks, while black portions represent regions classified as background blocks.

Please amend page 45, lines 12-15, as follows:

Through repetition of the above operation, the character blocks and the background blocks are binarized, and if it is determined in step 637 that the binarization is completed for all bocks of the image, a binarized image ~~[[of]]~~ as represented by FIG. 19I is output in step 639 ("Yes" path from decision step 637).

Map
4/6/09
Please amend page 45, lines ^{17 18}12-15, as follows:

FIG. 20 is a flowchart illustrating an example of a binarization method in which the edge enhancement part 130 is implemented using the improved quadratic filter in accordance with an embodiment of the present invention. FIG. 20 shows a binarization method according to the fourth embodiment in which the improved quadratic filter is used. FIGs. 21A to 21G are ~~diagrams~~ examples of images illustrating images generated when the binarization is performed in the procedure of FIG. 20.

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Please amend page 45, line 24, through page 46, line 3, as follows:

Referring to FIG. 20, in step 611, the input part 110 receives an input image shown in FIG. 21A. It is assumed that the image consists of 640 (columns) \times 480 (rows) pixels. In step 613, the block classification part 120 divides the input image ~~[[of]]~~ represented by FIG. 21A received from the input part 110 into blocks, analyzes pixels of the divided blocks, and classifies the divided blocks into character blocks and background blocks. The input image is divided into 8 \times 8-pixel blocks, and then classified into character blocks and background blocks ~~shown as represented~~ in FIG. 21B. In FIG. 21B, gray portions represent regions classified as character blocks, while black portions represent regions classified as background blocks.

Klap
4/6/04
Please amend page ~~45~~⁴⁶, lines 5-17, as follows:

In step 615, the block growing part 160 extends the character blocks classified by the block classification part 120 as ~~shown as represented~~ in FIG. 21C. In the block classification process, a block containing character pixels can be incorrectly classified as a background block due to the influence of a background between character pixels. The block growing part 160 grows the character blocks in order to extend pixels in a character block incorrectly classified as a background block. Then, in step 617, the block growing part 160 sequentially outputs the grown character blocks ~~[[of]]~~ as represented in FIG. 21C to the block grouping part 170. The image output to the block grouping part 170 corresponds to the character blocks ~~shown as represented~~ in FIG. 21D. In step 619, the block grouping part 170 receives the character blocks ~~[[of]]~~ as represented in FIG. 21D output from the block growing part 160, and groups each of the character blocks with its 8 adjacent blocks, generating the grouped blocks ~~[[of]]~~ as represented by FIG. 21E.